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## THE CONSERVATION OF THE NATIVE FAUNA

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THE ascendancy of man has been accompanied by certain inevitable changes and readjustments in nature. Probably the most conspicuous of these changes is that brought about by the cutting down of forests. Almost as conspicuous, and perhaps even more worldwide in distribution, are those changes resultant upon the destruction of the native fauna, and particularly of birds and mammals. In practically every country of every continent where formerly the "wild flocks and herds held sway," man has crowded out or thoughtlessly destroyed the resident animals until the problem of the preservation of representative faunas is coming to be one of the important concerns both of zoologists and governments in widely separated localities. With this as the background, it now becomes peculiarly desirable to trace the recent history of some of the more important species, limiting ourselves perforce to a few members of one of the great classes in a geographic area of limited extent.

Perhaps there is no more favorable unit in which to carry on our study than that comprised within the boundaries of California. Characterized not only by comparatively great area, but also by climatic features ranging from almost subtropical to boreal, and by a topography of almost infinite variety, it is small wonder that California possesses a mammal list including 369 different species or subspecies, as compared with 80 for Kansas,<sup>1</sup> 94 for Nebraska,<sup>2</sup> 152 for Colorado,<sup>3</sup> and 182 for Texas.<sup>4</sup>

Obviously the species likely to be in greatest danger everywhere are the game species, plus those species against which a public prejudice exists for one reason or another, and those species which, through the fur trade or otherwise, enter into the world's commerce.

Although it must be admitted that much of her inheritance has passed away, there is still plentiful evidence to indicate that California possessed an early fauna of such generous abundance as to justify according her a place among the big game countries of the world.

What are the specific items? Of the smaller fur-bearing species

<sup>1</sup> Swenk, "Nebraska Blue Book," 1915, p. 836.

<sup>2</sup> The same, pp. 851-855.

<sup>3</sup> Cary, U. S. Dept. Agric., Bureau Biol. Surv., N. Amer. Fauna, 33, 1911, pp. 51-211.

<sup>4</sup> Bailey, U. S. Dept. Agric., Biol. Surv., N. Amer. Fauna, 25, 1905, pp. 51-216.

there are forty-seven, distributed according to current taxonomic conceptions, as follows: three coyotes, seven gray foxes, four red foxes, one ringtailed cat, four species of raccoon, one marten, one fisher, one wolverine, four weasels, one mink, five spotted and the same number of striped skunks, two badgers, one river otter, the sea otter, four wild cats, and two beavers. This does not take account of any domestic species, nor of the native aplodontias, marmots, squirrels, musk-rats or rabbits, the fur of which doubtless occasionally found place in the early industries of the state.

Beside the smaller species just enumerated, our fauna contained a sea elephant, and is or was characterized by a goodly list of species of more strictly big game mammals, including the pronghorned antelope, two species of bighorned sheep, the same number of black bear, two species of elk, two of mountain lions, five of deer, and six of grizzly bears.

By outlining the status of the more important of these mammals, and by following them in some of the vicissitudes of their contact with man, we can perhaps best gain a conception of what we did have, what we still have, and what the general trend of events promises for the future.

#### FUR-BEARING MAMMALS

Concerning the less important fur-bearers there are few comparative data. Evidence gathered over several years from numerous trappers indicates their steady decrease. Even yet the economic value of these for the most part unappreciated members of our fauna is not inconsiderable. In fact, according to one estimate,<sup>5</sup> California's fur-bearing mammals, including only the bears, raccoons, skunks, badgers, river otter, mink, marten, fisher, red foxes and wolverine, at the present time produce an income which makes them worth seven million dollars to the state.

Of the fur-bearing land mammals, the otter and beaver seem to have been the most important. The abandonment of California as a field of work by the Hudson's Bay Company in 1841 is in itself unmistakable testimony regarding the decrease in numbers of these species. So far as can be ascertained at the present time, the otter is represented by comparatively few individuals on the "streams of northern California, south at least to Mendocino County, and through the Sacramento and San Joaquin valleys to the San Joaquin River, Fresno County."<sup>6</sup>

#### THE BEAVER

In 1829 McKay, working in the interest of the Hudson's Bay Company, is said to have trapped 4,000 beavers along the reedy shores of

<sup>5</sup> Taylor, *Science*, N. S., March 28, 1913, pp. 485-487.

<sup>6</sup> Grinnell, *Cal. Acad. Sci.*, 4th Ser., 3, 1913, p. 297, and Univ. Calif. Publ. Zool., 12, 1914, pp. 305-310.

San Francisco Bay alone. Dr. T. S. Palmer, in a conversation with the writer, asserted that in the seventies the lowlands of the San Joaquin Valley were a veritable trapper's paradise. In the ark of one trapper, on Old River, about fifteen miles above Webb's Landing, in the spring of 1877, he saw beaver skins piled flat as high as a six foot door. Evidently the beaver has become scarcer and still more scarce as the years have gone by, until it has seemed doubtful whether the species could survive even with the total protection which has for several years been accorded it. It must be admitted that of late the outlook is more hopeful. There is said to be a colony of one hundred and fifty in the Cache Slough district in the Sacramento River, as well as another considerable colony on the San Joaquin River near Mendota; and scattered individuals and colonies have been reported from the Pit, Sacramento, Merced, Tuolumne and Stanislaus rivers. It is probable that a few still occur on the Feather and American rivers, but the exact status of the species on these streams at present is unknown.

#### THE SEA ELEPHANT

We are prone to forget or overlook the intimate relation between the interests of man and the presence of the native animals. An illustration of what is perhaps one of the more unusual of these relationships is furnished by the case of the sea elephant, the abundant oil of which, according to Stephens, was much in demand as an illuminant in the early days in this state previous to the general use of coal oil. The market created by pioneer necessities, coupled with the sluggish temper of the animal, both mental and physical, evidently conspired to work its doom in our waters. Formerly found in some numbers, we must believe, along our southern coast and as far north as Point Reyes, it is gone completely from our shores, being reduced to a handful of survivors on Guadalupe Island off the coast of Lower California.<sup>7</sup>

#### THE SEA OTTER

The most aberrant of all living fissipedian carnivores as well as "the most valuable fur-bearing mammal in the world" is the sea otter. These animals were present in abundance off our shores at least until the early part of the nineteenth century. Bryant<sup>8</sup> has called attention to the fact that in the year 1801 no less than sixteen ships, one English and fifteen American, were on the Californian coast engaged in the pursuit of the sea otter. Bancroft, the historian, asserts that 18,000 otter skins were collected that year for the China market by the American vessels alone. In 1812 as many as seven or eight hundred sea otters

<sup>7</sup> See Townsend, *Proc. U. S. Nat. Mus.*, 8, 1885, pp. 90-93; "Pelagic Sealing, Extract from the Fur Seals and Fur Seal Islands of the North Pacific Ocean," Part III, 1899, p. 267; and *Zoologica*, 1, 1912, pp. 172-173.

<sup>8</sup> *Calif. Fish and Game*, 1, 1915, p. 97.

are said to have been killed in San Francisco Bay. These statements may be exaggerated, but they do indicate that the sea otter was an important object of pursuit. In 1785 the price ranged from \$1 to \$7 per skin.<sup>9</sup> In 1880 the average skin taken off our coast brought \$80, while in 1910 the average price paid for sea otter skins in London was said to be \$1,703.33. These figures seem to indicate that the demand is inversely proportional to the number of the animals available. For it should be remarked that although the sea otters formerly occurred in suitable localities all the way along our coast, they have completely disappeared from off northern and southern California, although individuals and small companies are still observed in the vicinity of Point Sur, Monterey County, and there is some evidence to indicate that since the passage in 1913 of the law giving them rigorous protection they are increasing slightly.

#### DEER

The deer is at the present time the most important game mammal in the state, and promises to maintain its preeminence for many years to come. Few species have been able to adapt themselves to the occupation of man as well. But this does not mean that there has not been a decrease in numbers. Hittell,<sup>10</sup> writing of the black-tailed deer, says:

In 1835, when Dana sailed into the bay of San Francisco, the hills around and the islands in the bay were overrun with them. On a sloping bluff near the Golden Gate, under which his vessel anchored, there were herds of hundreds upon hundreds, which stood still and looked at the ship, until, frightened by the noises made for the purpose of seeing their graceful movements, they bounded off.

Traffic in deer hides was carried forward until a comparatively late date. In 1842 deer and elk hides brought only from fifty cents to a dollar apiece in San Francisco. The considerable traffic which was carried on even at these low prices bears unmistakable testimony to the great numbers of the species concerned. Evidently deer were numerous, not only in the mountains, but on the plains, where now the sight of one would awaken the most extraordinary interest.<sup>11</sup>

Nominally there are five subspecies of deer within the state, two of black-tailed, three of mule deer.

The Columbia black-tail is still found abundantly in the northern coast district south to the Golden Gate, its range embracing Mount Shasta to the north and east, and taking in all the coast ranges east to the Sacramento Valley.

In the coast belt south of San Francisco, at least to Monterey and San Benito counties, its place is taken by the southern black-tail.

<sup>9</sup> Bryant, *Calif. Fish and Game*, 1, 1915, p. 97. Probably none of the skins sold in London in 1910 came from Californian waters.

<sup>10</sup> "History of California," 2, 1898, p. 562.

<sup>11</sup> Newberry, *Pac. R. R. Reports*, 6, 1857, *Zoology*, p. 66; and Bosqui, "Memoirs," 1904, pp. 62, 66.

The true mule deer is the form characteristic of the Sierra Nevada and the mountains of the extreme northeastern portion of the state in Modoc county. The mountains in southern California west of the desert proper are occupied by a small subspecies called the California mule deer, the range of which extends north at least to San Luis Obispo county and the Tehachapi mountains.

The burro deer (*Odocoileus hemionus eremicus*) formerly occurred on the deserts of the southwestern portion of the state bordering on the Colorado river. Members of the expedition from the Museum of Vertebrate Zoology to this region in 1910 were unable to find so much as a trace of the presence of the species, although they were told of its occurrence in numbers many years before, ". . . when they were to be found both in the river bottom and back through certain desert ranges, where there are springs which the deer could visit regularly for water."<sup>12</sup> No one in the vicinity had seen a deer within four years. As the record runs the date of the extirpation of the burro deer in California may be set down as approximately 1905 or 1906.

I may not leave the account of the deer without remarking the persistent rumors of the occurrence in the Modoc region of extreme northeastern California of white-tailed deer (*Odocoileus virginianus macrourus*); but so far no definite evidence in the shape of specimens has come to light.

It is quite certain that not only have the deer decreased markedly since the beginning of the nineteenth century but also that they are fewer in numbers than they were, say, ten, or twenty years ago. In some sections, notably in southern California, they are losing ground rapidly; in others, as in the Trinity-Siskiyou region of northern California, they are reported to be holding their own and even in certain localities to be increasing. It is not improbable that the number of deer killed by hunters under modern conditions, large as it is, aggregates a much smaller total than in former days, when individual bands of hide and market hunters slaughtered deer by hundreds and even thousands in a season.

Incidentally, testimony to the size of California and to her comparative supremacy as a game state even yet is given by the fact that in few states are more deer killed annually than are killed within her borders.

#### ELK

Our largest ungulate is the elk or wapiti, of which we have two species; one, perhaps known most commonly as the Roosevelt elk (*Cervus roosevelti*) formerly found numerously in the humid north coast belt south at least to the Golden Gate and east to Mount Shasta; the other, the valley elk (*Cervus nannodes*) found predominantly in the San Joa

<sup>12</sup> Grinnell, Univ. Calif. Publ. Zool., 12, 1914, p. 219.

quin Valley and low-lying regions tributary thereto. Dr. Newberry,<sup>13</sup> writing of the elk in early days, says:

West of the Rocky mountains, it was formerly most abundant in the valleys of California, where it is still far from rare. In the rich pasture lands of the San Joaquin and Sacramento, the old residents tell us, it formerly was to be seen in immense droves, and with the antelope, the black-tailed deer, the wild cattle, and mustangs, covered those plains with herds rivalling those of the bison east of the mountains, or of the antelope in south Africa.

Bosqui<sup>14</sup> while making a journey from Stockton to Mariposa in December, 1850, records seeing "bands of elk, deer, and antelope in such numbers that they actually darkened the plains for miles, and looked in the distance like great herds of cattle."

Hittell<sup>15</sup> includes as one item in a list of exports from San Francisco in 1842 three thousand elk and deer skins at prices ranging from fifty cents to a dollar. Robinson<sup>16</sup> asserts that the American elk, occurring on the northern side of San Francisco Bay, was then hunted for its tallow, which was preferred to that taken from bullocks.

At the present time the Roosevelt elk is making a last stand in the extreme northwestern portion of the state in the counties of Humboldt and Del Norte; while the valley elk is reduced to a herd in the tule lands of the southern San Joaquin Valley estimated to contain four or five hundred head. In 1905 the United States Department of Agriculture succeeded in transporting twenty-six of these elk to the Sequoia National Park in Tulare County, where the herd has now increased to about fifty head. About a year ago the California Academy of Sciences distributed fifty-four of the valley elk to seven parks and reservations in different parts of the state, where conditions were most favorable for their survival.

That the elk has taken a strong hold upon the interest and imagination of the people of California is shown by the fact that the killing of an elk within the state is made a felony, which is the severest penalty imposed for the violation of any game law within the commonwealth.

#### MOUNTAIN SHEEP

The description of the mountain sheep of the high Sierra by Grinnell<sup>17</sup> is one of the most interesting of recent developments in California mammalogy. The pioneer zoological investigators<sup>18</sup> connected with the Pacific railroad surveying parties all report mountain sheep on Mt. Shasta. Newberry's account says:

<sup>13</sup> Pac. R. R. Reports, 6, 1857, Zoology, p. 66.

<sup>14</sup> Quoted by Evermann, *Calif. Fish and Game*, 1, 1915, p. 86.

<sup>15</sup> "History of California," 1898, 2, p. 479.

<sup>16</sup> "Life in California," 1846, p. 61.

<sup>17</sup> Univ. Calif. Publ. Zool., 10, 1912, pp. 143-153.

<sup>18</sup> Newberry, Pac. R. R. Reports, 6, 1857, Zoology, p. 72; Kennerly, same, 10, 1859, p. 72; and Suckley and Gibbes, same, 12, p. 137.

On the slopes and shoulders of Mount Shasta the *Ovis montana* exists in large numbers; so much so that one spur of the mountain has been named "Sheep Rock" and there hunters are always sure of finding them.

The bighorn was referred to also as being habitually present in the vicinity of Rhett and Wright Lakes, eastward from Mount Shasta. The Modoc Expedition from the Museum of Vertebrate Zoology, 1910, found evidence of their former presence in the Warner Mountains of extreme northeastern California. Stephens<sup>19</sup> asserts that bighorns were "... formerly found in parts of the Sierra Nevada and on Mount Shasta, but they are apparently now exterminated in those mountains."

In October, 1911, in a section of the Sierra Nevada which is a portion of one of the wildest and most scenic regions in the world, there were secured the specimens on which the description of the form was based. It is asserted by Ober,<sup>20</sup> deputy fish and game commissioner for the district, that there are three bands of the Sierran bighorn ranging over a comparatively restricted tract of jagged and precipitous country on the face of the Sierran fault block. Grinnell<sup>21</sup> has set the northern and southern limits of range of the species as being respectively Mono County and Mount Whitney. A recent definite record of bighorns on the west slope of the Sierras is for the north spur of Mount Silliman, altitude 10,600 feet, within the Sequoia National Park, where sheep were seen August 19, 1910.<sup>22</sup> It is quite likely that the former range of the species included Mount Shasta and the Modoc region.

The Nelson bighorn, a smaller, shorter-haired species than its Sierran relative, is typical of the desert ranges of southeastern California, from the Inyo region south at least to the Mexican line.<sup>23</sup> Formerly it is said to have occurred northwest through the Tejon region to the Caliente Hills, San Luis Obispo County, and there are reports of its persistence still in scattered localities in this general district. At present the desert sheep is apparently increasing in some sections of its range, notably the desert ranges in Inyo County,<sup>24</sup> and stationary or decreasing in others, as in the desert portions of the more southerly counties, San Bernardino, Riverside and Imperial.<sup>25</sup> There are, fortunately, some large bands which promise well, and which at least indicate that there is no cause for concern over the immediate future of the species within the state.

<sup>19</sup> "California Mammals," 1906, p. 58.

<sup>20</sup> 23d Bien. Rpt., Calif. Fish and Game Com., 1914, p. 125.

<sup>21</sup> *Proc. Calif. Acad. Sci.*, 4th Ser., 3, 1913, p. 369.

<sup>22</sup> [Fry], "Sequoia and Gen. Grant Nat. Parks," Gen. Inf., Dept. Int., 1915, p. 22.

<sup>23</sup> Grinnell, *Proc. Calif. Acad. Sci.*, 4th Ser., 3, 1913, p. 369.

<sup>24</sup> Ober, 23d Bien. Rpt., Calif. Fish and Game Com., 1914, pp. 123-124.

<sup>25</sup> See Stephens, same, pp. 128-130.



## PRONGHORNED ANTELOPE

Of the pronghorn (*Antilocapra americana*) referred to by Chalmers Mitchell<sup>26</sup> as one of the most isolated and interesting of living creatures, formerly represented by herds of thousands of individuals found practically everywhere on Californian plains, we have only scattering bands remaining. There are still a few in the Modoc region of north-eastern California, on the arid western side of the San Joaquin Valley, in that part of the Mohave Desert known as Antelope Valley, and possibly in scattered localities in the extreme southern part of the state. This is the animal which was only a few years ago one of the most conspicuous features of the Californian plains and deserts, as witness the following from Newberry:

Though found in nearly all parts of the territory of the United States west of the Mississippi, it is probably most numerous in the valley of the San Joaquin, California. There it is found in herds literally of thousands; and though much reduced in numbers by the war which is incessantly and remorselessly waged upon it, it is still so common that its flesh is cheaper and more abundant in the markets of the Californian cities than that of any other animal.<sup>27</sup>

It is not improbable that the antelope's former habitat extended nearly or quite to tidewater. Dr. Colbert A. Canfield of Monterey, who seems to have been a close and careful observer, wrote to Professor Baird in 1858 as follows:

In your report you say nothing of the existence of the antelope on this side of the Sierra Nevada; but I can assure you that they abound everywhere in all the plains and valleys of the western slope, down to the Pacific Ocean.<sup>28</sup>

A. Robinson in his "Life in California"<sup>29</sup> writes of the San Francisco bay region:

On the northern side of the bay are found the American elk and antelope, and great quantities of deer. . . .

J. Ross Browne, writing in 1864, says with reference to country traversed by him:

A large portion of the country bordering on the Salinas river, as far south as the Mission of Soledad, has been cut up into small ranches and farms; and thriving settlements and extensive fields of grain are now to be seen where formerly ranged wild bands of cattle, mustang, and innumerable herds of antelope."<sup>30</sup>

The pronghorn was apparently sustaining about all the competition it could withstand before the advent of the white man. Since his coming it has been on the downgrade. Apparently his best efforts will be necessary to preserve its life.

<sup>26</sup> *Science*, N. S., Sept. 20, 1912, p. 357.

<sup>27</sup> *Pac. R. R. Reports*, 6, 1857, Zoology, p. 71.

<sup>28</sup> *Proc. Zool. Soc. London*, 1866, p. 110.

<sup>29</sup> New York, Wiley and Putnam, 1846, p. 61.

<sup>30</sup> "Crusoe's Island," New York, Harper's, p. 174.

## THE BLACK BEAR

Our biggest living carnivore is the black bear. One subspecies is found in the Transition and Boreal zones of the coast mountains north of San Francisco Bay, while the other, the exact status of which remains to be elucidated, occupies the Sierra Nevada south to the vicinity of the Tehachapi Mountains.<sup>31</sup> Apparently the black bear has never been found either in the coast district south of San Francisco or in southern California.

Although constant persecution has resulted in considerable reduction in its numbers, the black bear has proved a much more resilient and adaptable species than the grizzly; and there are good grounds for the hope that with fair treatment it may be counted on as an important big game and fur-producing species for many years to come.

## THE GRIZZLY BEAR

Beyond all question the group of her grizzly bears was the most vividly impressive portion of the native fauna of California. No less than six distinct forms are now recognized by Dr. C. Hart Merriam<sup>32</sup> as belonging to the fauna of California alone.

Let me briefly list them: *Ursus klamathensis* is described from Klamath river; *Ursus colusus* is from the Sacramento Valley, the type skull coming, in all probability, from somewhere on the river between Colusa and Sacramento; the huge *Ursus californicus*, known by name longer than any of the others, is restricted to the Monterey region; from the historic old Fort Tejon, in the Tehachapi Mountains, comes *Ursus californicus tularensis*, also found in certain ranges of southern California; the smallest of them all, *Ursus henshawi*, comes from the southern Sierra Nevada; while the Trabuco Mountain region of southern California was the home of the gigantic *Ursus magister*, the "... largest of known grizzlies, considerably larger than *Ursus californicus* of the Monterey region, and even than *Ursus horribilis*, the great buffalo-killing grizzly of the plains (only equalled by the largest *alexandrae* of Kenai peninsula)."<sup>33</sup>

Bryant<sup>34</sup> records the fact that Bidwell, in Rogers's "History of Colusa County," states that when the county was first settled it was not uncommon to see thirty or forty grizzly bears in one day.

Hittell submits the following:

In early times grizzly bears were very plentiful all over the country and did great damage to the cattle and gardens of the first settlers. In 1799 the troops of Purisima made a regular campaign against the bears of that region.

<sup>31</sup> Grinnell, *Proc. Cal. Acad. Sci.*, 4th Ser., 3, 1913, p. 284; and C. H. Merriam, conversation.

<sup>32</sup> *Proc. Biol. Soc. Wash.*, 27, 1914, pp. 173-196.

<sup>33</sup> Merriam, *Proc. Biol. Soc. Wash.*, 27, 1914, p. 189.

<sup>34</sup> *Calif. Fish and Game*, 1, 1915, p. 96.

In July, 1801, Raymundo Carrillo wrote from Monterey that the vaqueros in that neighborhood had within the year killed thirty-eight bears, but that the depredations by others continued unabated; and he proposed an ambushade by the troops at a certain place where the carcasses of a few old mares should be exposed.<sup>35</sup>

Newberry writing in 1857 asserts concerning the grizzlies:

They are rather unpleasantly abundant in many parts of the Coast Range, and Sierra Nevada, in California, where large numbers are annually killed by the hunters, and where not a few of the hunters are annually killed by the bears.<sup>36</sup>

The general vividness with which the grizzly impressed himself upon the pioneers as the original native son is indicated by the fact that he was painted, by common consent, as the totem of the commonwealth, on the first flag of the "California Republic."

For several years strenuous efforts have been made to obtain authentic records of living grizzlies in California, so far without success. It seems quite safe to state that each and every one of the six species is now completely extirpated from our fauna.

For the outline of the former range of these bears we must look forward to the publication of the results of Dr. Merriam's exhaustive researches. The fragmentary material now available will not permit of any detailed distributional statements. The actual dates of extermination of the various species are uncertain. The skull from the southern Sierra Nevada, which became the type of *Ursus henshawi*, was collected by Dr. J. T. Rothrock and H. W. Henshaw in 1875. Two specimens, skins only, from the Tehachapi region, and supposedly referable to *Ursus californicus tularensis*, are in the Museum of Vertebrate Zoology and were collected in the Tejon (or San Emigdio) Mountains, between San Emigdio Ranch and Old Fort Tejon, between 1893 and 1896. The type of the huge *Ursus magister* of southern California was shot in the Santa Ana Mountains in August, 1900 or 1901, and there are no known records subsequent to this date.

#### THE ZOOLOGIST AND THE PRESERVATION OF THE NATIVE FAUNA

That California's early endowment of wild life was generous indeed seems clearly to be indicated by this brief survey; and that there has been a steady decrease in numbers of practically all the game and fur-bearing mammals seems to be equally clear. We now count, among mammals alone, at least eight species which are totally extirpated from our fauna.

Nor is California a special offender. The same story of the dwindling numbers of the native animals is repeated in nearly every state of the Union; and similar stories are told in Europe, Asia, Africa, South America and Australia.

<sup>35</sup> "History of California," 2, 1898, pp. 560-561.

<sup>36</sup> Pac. R. R. Reports, 6, Zoology, p. 47.

There are few people in these days who deny that when the mountains are spoiled of their forests; when conspicuous and interesting species of game or bird life are destroyed; when any of the natural resources of the people are wasted, then progress is impeded, constructive works retarded, and the conditions of existence rendered more severe.

Fundamental to conservation is scientific research, of course; admittedly our investigations have not penetrated very deeply into the unknown, and this first phase of our work is prerequisite to every other phase. It will doubtless be admitted, however, that we can not possibly postpone action until all points in all problems become clear. This being the case it is due the commonwealth that all available information be brought to bear when legislative action is contemplated; and it is evident that the only citizens who possess any considerable body of information pertinent to the biological side of the problem of conservation are the professional biologists.

It is, fortunately for all concerned, coming to be realized in ever-increasing degree, that in a democracy, the zoological representative of the people, if I may so speak, should maintain cordial and sympathetic relations with those from whom his support is derived and whom he is endeavoring to serve, and that it is only fair that he freely and generously assume a place of leadership in the campaign for the preservation of the native fauna. Indeed, is it not true that unless the zoologist does take pains to get the word to the people at critical times, upon him must inevitably fall a share of the blame for ignorant and destructive popular action, legislative and otherwise?